

REMARKS

Prior to this Reply, Claims 1-7, 9, 10, 14-25, 27, 29, 30, 35, 36, 50-77, 79-85 and 87-94 were pending. Through this Reply, Claims 1-7, 9, 10, 14-25, 27, 29, 30, 35, 36, 50-77, 79-85 and 87-94 have been cancelled without prejudice to, or disclaimer of, the subject matter contained therein, and Claims 95-166 have been added. Accordingly, Claims 95-166 are now at issue in the present case.

I. Claims Rejections

The Examiner rejected Claims 1, 2, 21, 22, 50, 51, 56, 58, 75 and 84 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,576,906 to Fisher et al. (hereinafter “Fisher”).

The Examiner also rejected Claims 4, 9, 10, 24, 29, 30, 57, 73 and 85 under 35 U.S.C. § 103(a) as being unpatentable over Fisher in view of U.S. Patent No. 5,796,543 to Ton-That (hereinafter “Ton-That”).

The Examiner also rejected Claims 5, 6 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Fisher and Ton-That in view of U.S. Patent No. 5,483,393 to Mento et al. (hereinafter “Mento”).

The Examiner also rejected Claims 7 and 27 under 35 U.S.C. § 103(a) as being unpatentable over Fisher and Ton-That in view of U.S. Patent No. 4,864,435 to Kawakami et al. (hereinafter “Kawakami”).

The Examiner also rejected Claims 20, 61 and 87 under 35 U.S.C. § 103(a) as being unpatentable over Fisher in view of Kawakami.

The Examiner also rejected Claims 15-17, 35, 79 and 80 under 35 U.S.C. § 103(a) as being unpatentable over Fisher in view of U.S. Patent No. 5,077,736 to Dunphy, Jr. et al. (hereinafter “Dunphy”).

The Examiner also rejected Claims 18 and 81 under 35 U.S.C. § 103(a) as being unpatentable over Fisher and Dunphy in view of U.S. Patent No. 5,907,408 to Watanabe et al. (hereinafter “Watanabe”).

The Examiner also rejected Claims 19, 36, 62, 83 and 89-91 under 35 U.S.C. § 103(a) as being unpatentable over Fisher in view of U.S. Patent No. 6,208,479 to Suzuki (hereinafter “Suzuki”).

The Examiner also rejected Claims 53, 54, 59, 76, 82, 92 and 94 under 35 U.S.C. § 103(a) as being unpatentable over Fisher in view of Mento.

The Examiner also rejected Claim 55 under 35 U.S.C. § 103(a) as being unpatentable over Fisher and Mento in view of Kawakami.

The Examiner also rejected Claims 14, 60, 77 and 88 under 35 U.S.C. § 103(a) as being unpatentable over Fisher in view of U.S. Patent No. 5,956,196 to Hull et al. (hereinafter “Hull”).

The Examiner also rejected Claims 3, 23, 52, 63-66 and 68-70 under 35 U.S.C. § 103(a) as being unpatentable over Fisher in view of U.S. Patent No. 6,445,531 to Gaertner et al. (hereinafter “Gaertner”).

The Examiner also rejected Claim 67 under 35 U.S.C. § 103(a) as being unpatentable over Fisher and Gaertner in view of U.S. Patent No. 5,412,809 to Tam et al. (hereinafter “Tam”).

The Examiner also rejected Claim 71 under 35 U.S.C. § 103(a) as being unpatentable over Fisher and Gaertner in view of Dunphy.

The Examiner also rejected Claim 72 under 35 U.S.C. § 103(a) as being unpatentable over Fisher, Gaertner and Dunphy in view of U.S. Patent No. 6,384,998 to Price et al. (hereinafter “Price”).

Claims 1-7, 9, 10, 14-25, 27, 29, 30, 35, 36, 50-73, 75-77, 79-85 and 87-92 and 94 have been cancelled. Therefore, the rejections are now moot.

II. New Claims

Claims 95-166 have been added. No new matter has been added.

Ton-That and Fisher are the primary references of record and, therefore, are discussed below.

Ton-That discloses track segment 500 that includes servo wedge 502 and data sector 508. Servo wedge 502 includes servo preamble 504 and servo position 506, and servo position 506 includes track number identification field 520. ID field 520 is radially offset so that a micro-jog is not required to align read element 202 with ID field 520 during read and write operations. Data sector 508 includes data sector identification field 507 and three data segments 508₁, 508₂ and 508₃ that each store up to 512 bytes of data. Furthermore, track 126 includes 88 track segments 500 and thus 264 (88 x 3) data segments 508.

Fisher discloses servo burst pattern 100 that includes on-track phase 102, 50% off-track phase 104 and coherent phase 106. On-track phase 102 provides magnetization patterns that change at the track centerlines, 50% off-track phase 104 provides magnetization patterns of opposite polarity at the track boundaries, and coherent phase 106 provides magnetization patterns that do not change along the disk radius as a reference signal that resets synchronous sampling gain and timing loops to precise timing phase and gain.

Claim 95 recites “storing a first data segment in first tracks in the storage media, wherein the first tracks include a first start track and a first end track, the first data segment starts in the first start track at a start rotational phase, ends in the first end track at an end rotational phase, starts in adjacent first tracks at start rotational phases offset by an intra-segment rotational skew angle and ends in adjacent first tracks at end rotational phases offset by the intra-segment rotational skew angle.”

Claim 95 also recites “storing a second data segment in second tracks in the storage media, wherein the second tracks include a second start track and a second end track, the second data segment starts in the second start track at the start rotational phase, ends in the second end track at the end rotational phase, starts in adjacent second tracks at start rotational phases offset by the intra-segment rotational skew angle and ends in adjacent second tracks at end rotational phases offset by the intra-segment rotational skew angle.”

Claim 95 further recites “the first and second data segments are radially coherent, the first end track is adjacent to the second start track, and the start and end rotational phases are offset by an inter-segment rotational skew angle that is greater than the intra-segment rotational skew angle.”

Ton-That fails to teach or suggest storing data segment 508 in multiple tracks, much less the inter-segment skew angle between start rotational phases and between end rotational phases of data segment 508 on adjacent tracks, or the intra-segment rotational skew angle between start and end rotational phases of separate data segments 508 that is greater than the inter-segment rotational skew angle. Instead, data segments 508 are regular repeating patterns each within each data sector 508 on track 126.

Fisher fails to teach or suggest storing coherent phase 106 in multiple tracks, much less the inter-segment skew angle between start rotational phases and between end rotational phases of coherent phase 106 on adjacent tracks, or the intra-segment rotational skew angle between start and end rotational phases of separate coherent phases 106 that is greater than the inter-segment rotational skew angle. Instead, coherent phases 106 are regular repeating patterns each within servo burst pattern 100 on each track.

Claims 96-114 depend from Claim 95 and are allowable for at least the same reasons as Claim 95.

Claim 115 is allowable for at least the same reasons as Claim 95. Claims 116-124 depend from Claim 115 and are allowable for at least the same reasons as Claim 115.

Claim 125 is allowable for at least the same reasons as Claim 95. Claims 126-134 depend from Claim 125 and are allowable for at least the same reasons as Claim 125.

Claim 135 is allowable for at least the same reasons as Claim 95. Claims 136-144 depend from Claim 135 and are allowable for at least the same reasons as Claim 135.

Claim 145 is allowable for at least the same reasons as Claim 95. Claims 146-150 depend from Claim 145 and are allowable for at least the same reasons as Claim 145.

Claim 150 is allowable for at least the same reasons as Claim 95. Claims 151-154 depend from Claim 150 and are allowable for at least the same reasons as Claim 150.

Claim 155 is allowable for at least the same reasons as Claim 95. Claims 156-160 depend from Claim 155 and are allowable for at least the same reasons as Claim 155.

Claim 160 is allowable for at least the same reasons as Claim 95. Claims 161-164 depend from Claim 160 and are allowable for at least the same reasons as Claim 160.

Claim 165 is Claim 93, which is allowed.

Claim 166 is Claim 74 rewritten in independent form including all limitations of its base claim and any intervening claims, which is allowable.

III. Amendments to Specification

A substitute specification without claims (and a marked-up version thereof) is provided herein under 37 C.F.R. 1.125 to improve clarity of the specification. No new matter has been added.

Applicants respectfully request that the substitute specification be entered.

IV. Amendments to Drawings

Applicants are submitting replacement Figs. 1, 2, 3, 4, 5, 6A, 6B, 7, 8, 9A, 9B, 10, 11, 12, 13A and 13B (contained on Replacement Sheets 1-15) to improve the quality of the drawings.

Fig. 2 has been modified to clarify CPU 12, memory 14, bus adapter 16, system bus 18, I/O bus 20, I/O device 22 and disk drive 24.

Fig. 3 has been modified to clarify microprocessor 80, motor driver 82, read/write channel 84, controller 86, DRAM buffer 88 and buses 90 and 92.

Fig. 4 has been modified to clarify read/write channel 84, data controller 94, servo controller 96 and buses 98 and 102.

Fig. 6A has been modified to change “seg” to “segments” and to reformat the subscripts.

Fig. 6B has been modified to clarify disk 38, recording zones 104A and 104B and tracks T_{km+3} , T_{kp} and T_{kp+1} and to reformat the subscripts.

Fig. 7A has been renumbered as Fig. 7 and modified to clarify VCM 56, motor driver 82, servo controller 96, seek profile 106, current regulator 108, the feed current, the expected transducer head motion (EM) and the actual transducer head motion.

Fig. 7B has been renumbered as Fig. 8 and modified to renumber steps 101, 103, 105, 107, 109, 111, 113 and 115 as steps 110, 112, 116, 118, 120, 122, 124 and 126, respectively, and at step 110 to delete “,” and at step 112 to delete “value” and at step 116 to change “determine” to “obtain actual transducer” and “go” to “destination track” and at step 118 to insert “track” after “destination” and at step 120 to insert “head” after “transducer” and at step 122 to change “velocity per distance to go to expected values” to “actual and expected transducer head velocity and distance to destination track” and at step 124 to delete “current” and to insert step 114 between steps 112 and 116.

Fig. 8A has been renumbered as Fig. 9A.

Fig. 8B has been renumbered as Fig. 9B.

Fig. 9 has been renumbered as Fig. 10 and modified to clarify disk drive 24, AV storage server 130, controller 132, data buffers 134, storage device 136, network interface 138, displays 140, communication network 142, component boxes 144 and networked AV system 146.

Fig. 10 has been renumbered as Fig. 11 and modified to renumber steps 120, 122, 124, 126 and 128 as steps 150, 152, 154, 156 and 158, respectively, and at step 154 to delete “a” and at step 156 to insert “head” after “transducer.”

Fig. 11 has been renumbered as Fig. 12 and modified to renumber steps 130, 132, 134, 136 and 138 as steps 160, 162, 164, 166 and 168, respectively, and at step 162 to delete “a” and at step 164 to insert “head” after “transducer” and to delete “the” and at step 166 to insert “segment” after “data” and to delete “the.”

Fig. 12A has been renumbered as Fig. 13A and modified to delete “rotational phase R to next DS has only two values, these are 1/2 a revolution or a full revolution.”

Fig. 12B has been renumbered as Fig. 13B and modified to reformat the subscripts.

No new matter has been added. Figs. 1, 2, 3, 4, 5, 6A, 6B, 7, 8, 9A, 9B, 10, 11, 12, 13A and 13B constitute all of the drawings of the application.

V. Additional Claim Fees

In determining whether additional claim fees are due, reference is made to the Fee Calculation Table (below).

Fee Calculation Table						
	Claims Remaining After Amendment		Highest Number Previously Paid For	Present Extra	Rate	Additional Fee
Total (37 CFR 1.16(c))	72	Minus	72	= 0	x \$50 =	\$0.00
Independent (37 CFR 1.16(b))	10	Minus	10	= 0	x \$200 =	\$0.00

As set forth in the Fee Calculation Table (above), Applicants previously paid claim fees for seventy-two (72) total claims and for ten (10) independent claims. Accordingly, Applicants believe that no additional claim fees are due. Nevertheless, the Commissioner is hereby authorized to charge Deposit Account No. 50-2198 for any fee deficiencies associated with filing this paper.


VI. Conclusion

It is believed the above comments establish patentability. Applicants do not necessarily accede to the assertions and statements in the Office Action, whether or not expressly addressed.

Applicants believe that the application appears to be in form for allowance. Accordingly, reconsideration and allowance thereof is respectfully requested.

The Examiner is invited to contact the undersigned at the below-listed telephone number regarding any matters relating to the present application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Tejpal S. Hansra", written over a horizontal line.

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